

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

2004

Nebraska Summary: S460 Case-IH JX65

Nebraska Tractor Test Laboratory

University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>

 Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Laboratory, Nebraska Tractor Test, "Nebraska Summary: S460 Case-IH JX65" (2004). *Nebraska Tractor Tests*. 2879.

<https://digitalcommons.unl.edu/tractormuseumlit/2879>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

SUMMARY OF OECD TESTS 2146 & 2147—NEBRASKA SUMMARY 460

CASE IH JX 65 DIESEL

12 SPEED

Chassis Serial numbers HFJ013287 and higher

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed (PTO speed-614 rpm)					
59.3 (44.2)	2500	3.76 (14.23)	0.437 (0.266)	15.79 (3.11)	
Maximum Power (2 hours)					
60.5 (45.1)	2300	3.71 (14.06)	0.424 (0.258)	16.29 (3.21)	
Standard Power Take-off Speed (540 rpm)					
59.8 (44.6)	2200	3.64 (13.77)	0.419 (0.255)	16.45 (3.24)	

VARYING POWER AND FUEL CONSUMPTION

59.3 (44.2)	2500	3.76 (14.23)	0.437 (0.266)	15.79 (3.11)	Air temperature
52.0 (38.8)	2584	3.49 (13.20)	0.462 (0.281)	14.92 (2.94)	73°F (23°C)
39.6 (29.5)	2620	2.81 (10.62)	0.490 (0.298)	14.10 (2.78)	Relative humidity
26.6 (19.9)	2643	2.12 (8.03)	0.550 (0.335)	12.54 (2.47)	41%
13.5 (10.1)	2687	1.55 (5.87)	0.791 (0.481)	8.73 (1.72)	Barometer
--	2714	1.05 (3.97)	--	--	27.0" Hg (91.5 kPa)

Maximum Torque - 172.5 lb.-ft. (233.8 Nm) at 1300 rpm
Maximum Torque Rise - 38.4%
Torque rise at 2000 engine rpm - 23%

DRAWBAR PERFORMANCE (Unballasted-Front Drive Engaged) FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—8th (III-1) Gear									
46.4 (34.6)	3095 (13.77)	5.62 (9.05)	2502	5.0	0.562 (0.342)	12.44 (2.45)	167 (75)	63 (17)	27.3 (92.3)
75% of Pull at Maximum Power—8th (III-1) Gear									
36.9 (27.5)	2325 (10.33)	5.95 (9.57)	2601	3.3	0.649 (0.395)	10.76 (2.12)	167 (75)	63 (17)	27.3 (92.3)
50% of Pull at Maximum Power—8th (III-1) Gear									
25.3 (18.9)	1550 (6.89)	6.12 (9.85)	2633	1.7	0.774 (0.471)	9.02 (1.78)	167 (75)	63 (17)	27.3 (92.3)
75% of Pull at Reduced Engine Speed—9th (II-4) Gear									
36.6 (27.3)	2315 (10.30)	5.92 (9.53)	2028	3.2	0.547 (0.333)	12.78 (2.52)	167 (75)	63 (17)	27.3 (92.3)
50% of Pull at Reduced Engine Speed—9th (II-4) Gear									
25.7 (19.1)	1570 (6.99)	6.13 (9.86)	2072	1.9	0.609 (0.371)	11.46 (2.26)	167 (75)	63 (17)	27.3 (92.3)

Locations of tests: DAEMTC (The Directorate of Agricultural Equipment and Machinery Testing Centre) Ankara, Turkey and CNH America LLC Burr Ridge, IL, USA

Dates of Test: August 2003 - March, 2004

Manufacturer: CNH America LLC, 700 State St. Racine, WI. 53404 USA

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.829 **Fuel weight** 6.90 lbs/gal (0.827 kg/l) **Oil SAE** 20W-50 **API service classification** DM12 **Transmission and hydraulic lubricant** BP Terrac Tractan 8 fluid **Front axle lubricant** BP Terrac Tractan 8 fluid

ENGINE: Make Iveco Diesel **Type** three cylinder vertical with turbocharger **Serial No.** *639-911196* **Crankshaft** lengthwise **Rated engine speed** 2500 **Bore and stroke** 4.094" x 4.528" (104.0 mm x 115.0 mm) **Compression ratio** 18.0 to 1 **Displacement** 179 cu in (2931 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** paper element **Oil filter** two cartridges **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat

CHASSIS: **Type** 2WD & front wheel assist **Serial No.** 2WD-D2C2AC, FWA-D2S7AA **Tread width** rear 56.1" (1424 mm) to 75.7" (1924 mm) front 2WD-56.0" (1422 mm) to 71.7" (1822 mm) FWA-56.9" (1445 mm) to 73.8" (1875 mm) **Wheel base** 2WD-85.6" (2175 mm), FWA-83.4" (2119 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 1.06 (1.71) second 1.63 (2.63) third 2.22 (3.58) fourth 2.48 (3.99) fifth 3.19 (5.13) sixth 3.82 (6.15) seventh 5.19 (8.36) eighth 5.84 (9.40) ninth 7.44 (11.98) tenth 9.00 (14.48) eleventh 12.24 (19.69) twelfth 17.53 (28.21) reverse 1.06 (1.71), 1.64 (2.64), 2.23 (3.59), 2.49 (4.00), 3.20 (5.15), 3.83 (6.17), 5.21 (8.39), 5.86 (9.43), 7.47 (12.02), 9.02 (14.52), 12.28 (19.76), 17.58 (28.29) **Clutch** dual dry disc operated by foot pedal **Brakes** wet disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2200 engine rpm and 1000 rpm at 2381 engine rpm **Unladen tractor mass** 2WD- 6010 lb (2726 kg), FWA - 6130 lb (2780 kg)

DRAWBAR PERFORMANCE
(Unballasted – Front Drive Engaged)
MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F cool- ing med	°C Air dry bulb	Barom. inch Hg (kPa)
5th (I-4) Gear									
36.2 (27.0)	4625 (20.58)	2.94 (4.73)	2598	12.4	0.625 (0.380)	11.02 (2.20)	167 (75)	63 (17)	27.3 (92.3)
6th (II-2) Gear									
41.7 (31.1)	4310 (19.17)	3.63 (5.84)	2572	8.8	0.583 (0.355)	11.82 (2.36)	167 (75)	63 (17)	27.3 (92.3)
7th (II-3) Gear									
47.2 (35.2)	3940 (17.53)	4.49 (7.23)	2314	7.8	0.555 (0.338)	12.42 (2.48)	167 (75)	63 (17)	27.3 (92.3)
8th (III-1) Gear									
48.9 (36.5)	3610 (16.05)	5.08 (8.18)	2300	6.6	0.538 (0.327)	12.82 (2.56)	167 (75)	63 (17)	27.3 (92.3)
9th (II-4) Gear									
44.6 (33.2)	2480 (11.04)	6.74 (10.84)	2299	2.8	0.562 (0.342)	12.27 (2.45)	167 (75)	63 (17)	27.3 (92.3)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

NOTE 1: The PTO and drawbar results shown on this report are from tests conducted on the New Holland TD 70D.

NOTE 2: The performance data on this summary applies to tractor chassis serial numbers HFJ013287 and higher.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's claim of 13.6 GPM (51.7 lpm) hydraulic flow. The performance results on this summary were taken from OECD tests conducted under the Code II Test Code procedure.

We, the undersigned, certify that this is a true summary of data from OECD Reports No. **2146** & **2147**, Nebraska Summary 460, April 1, 2005.

Leonard L. Bashford
Director

M.F. Kocher
V.I. Adamchuk
W.P. Campbell
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITHOUT CAB	Front wheel drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 7th(II-3) Gear	86.0	86.1
Bystander		—

TIRES AND WEIGHT

Rear tires - No., size, ply & psi(kPa)
Front tires - No., size, ply & psi(kPa)
Height of Drawbar
Static Weight with operator-Rear
- Front
- Total

Tested Without Ballast

Front Wheel Assist	2WD
Two 14.9-30; 6; 20(140)	Two 14.9-30; 6; 20 (140)
Two 9.5-24; 6; 30(210)	Two 7.50-16; 6; 40 (280)
14.2 in (360 mm)	14.2 in (360 mm)
3925 lb (1780 kg)	4100 lb (1860 kg)
2370 lb (1075 kg)	2075 lb (941 kg)
6295 lb (2855 kg)	6175 lb (2801 kg)

DRAWBAR PERFORMANCE
(Unballasted - 2WD)
FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F cool- ing med	°C Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—8th (III-1) Gear									
44.4 (33.1)	2700 (12.00)	6.17 (9.93)	2509	8.0	0.571 (0.347)	12.23 (2.41)	162 (72)	59 (15)	27.0 (91.5)
75% of Pull at Maximum Power—8th (III-1) Gear									
34.6 (25.8)	2025 (9.00)	6.41 (10.31)	2555	6.0	0.681 (0.414)	10.25 (2.02)	162 (72)	59 (15)	27.0 (91.5)
50% of Pull at Maximum Power—8th (III-1) Gear									
24.2 (18.1)	1350 (6.00)	6.73 (10.84)	2636	4.1	0.793 (0.482)	8.81 (1.73)	162 (72)	59 (15)	27.0 (91.5)
75% of Pull at Reduced Engine Speed—9th (II-4) Gear									
34.6 (25.8)	2025 (9.00)	6.41 (10.31)	2006	6.0	0.571 (0.347)	12.23 (2.41)	162 (72)	59 (15)	27.0 (91.5)
50% of Pull at Reduced Engine Speed—9th (II-4) Gear									
24.6 (18.3)	1370 (6.09)	6.74 (10.84)	2069	4.2	0.658 (0.400)	10.61 (2.09)	162 (72)	59 (15)	27.0 (91.5)
MAXIMUM POWER IN SELECTED GEARS									
5th (I-4) Gear									
33.0 (24.6)	3925 (17.45)	3.15 (5.08)	2551	14.9	0.710 (0.432)	9.84 (1.94)	156 (69)	50 (10)	27.3 (92.5)
6th (II-2) Gear									
39.0 (29.1)	3870 (17.22)	3.78 (6.08)	2507	13.6	0.646 (0.393)	10.81 (2.13)	156 (69)	50 (10)	27.3 (92.5)
7th (II-3) Gear									
46.5 (34.7)	3520 (15.66)	4.95 (7.97)	2345	11.0	0.546 (0.332)	12.79 (2.52)	156 (69)	50 (10)	27.3 (92.5)
8th (III-1) Gear									
48.7 (36.3)	3330 (14.81)	5.49 (8.83)	2297	10.0	0.528 (0.321)	13.22 (2.60)	156 (69)	50 (10)	27.3 (92.5)
9th (II-4) Gear									
46.2 (34.5)	2380 (10.59)	7.28 (11.72)	2311	7.0	0.551 (0.335)	12.69 (2.50)	156 (69)	50 (10)	27.3 (92.5)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: none

Maximum Force Exerted Through Whole Range: 3865 lbs (17.2kN)

- i) Opening pressure of relief valve: NA
- Sustained pressure of the open relief valve: 2975 psi (205 bar)
- ii) Pump delivery rate at minimum pressure and rated engine speed: 11.0 GPM (41.8 l/min)
- iii) Pump delivery rate at maximum hydraulic power: 9.1 GPM (34.4 l/min)
- Delivery pressure: 2685 psi (185 bar)
- Power: 14.2 HP (10.6 kW)

THREE POINT HITCH PERFORMANCE (SAE test)

Observed Maximum Pressure psi.(bar) 2780(192)
 Location: hydraulic manifold
 Hydraulic oil temperature: °F(°C) 149(65)
 Location: hydraulic sump
 Category: II
 Quick attach: none

SAE Static Test—System pressure 2470 psi (170 Bar)

Hitch point distance to ground level in. (mm)	8.0(203)	15.0(380)	22.0(558)	29.0(737)	36.0(914)
Lift force on frame lb	5769	6055	5793	6060	5147
" " " " " " (kN)	(25.7)	(26.9)	(25.8)	(27.0)	(22.9)

HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test		SAE test	
	inch	mm	inch	mm
A	30.9	772	30.1	765
B	10.0	255	10.0	255
C	11.6	295	11.6	295
D	11.6	295	11.6	295
E	7.5	190	9.4	240
F	8.2	208	8.2	208
G	26.2	665	24.6	625
H	0.2	5	0.2	5
I	7.7	195	7.1	180
J	18.0	457	16.4	417
K	17.1	435	20.1	510
L	39.2	995	39.2	995
M	26.2	665	26.2	665
N	36.2	920	36.2	920
O	8.2	208	8.0	203
P	42.0	1067	35.4	899
Q	36.3	921	32.0	813
R	22.4	570	24.4	619

